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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/797,725	03/11/2004	Albert Jan Hendrik Klomp	081468-0308636	4128

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EXAMINER	
GUTIERREZ, KEVIN C	

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 12/15/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/797,725	KLOMP ET AL.	
	Examiner	Art Unit	
	Kevin Gutierrez	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *28 September 2006*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *11 March 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *9-28-06*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Response to Arguments

1. Applicant's arguments filed September 28, 2006 have been fully considered. The objection to the claims has been withdrawn. The Applicant's arguments regarding the rejections to the claims are not persuasive. For the at least the reasons stated below, the instant application is rendered as unpatentable.

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988)and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, del Puerto et al. disclose at least one load-lock (104) to serve to move wafers in and out of the wafer exchange chamber ([0031], lines 14-15). Fuse et al. teaches multiple object supports within a load-lock chamber. Therefore, the combination of del Puerto et al. and Fuse et al. disclose the claimed limitation. Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to modify del Puerto et al. to include at least two distinct object supports for at least the purpose of increasing wafer production.

In response to applicant's argument that there is no motivation to combine the references in the manner that the Examiner has proposed, and there is no reasonable

expectation that such a combination would be successful, the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981).

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-22 are rejected under 35 U.S.C. 102(e) as being anticipated by del Puerto et al. (US 2003/0082466) in view of Fuse et al. (5,217,501).

Regarding claim 1, Del Puerto et al. disclose "at least one load lock (104) constructed and arranged to transfer an object between a first environment (104; alignment load lock) and a second environment (106; wafer exchanger chamber);

• an object handler (109; robot) comprising a handler chamber (106) in which said second environment prevails, said object handler (109) and said at least one load lock (107) being constructed and arranged to transfer said object between said handler chamber and said at least one load lock ([0031], lines 14-16); and

• a lithographic projection apparatus comprising a projection chamber (111; lithography patterning chamber);

• wherein said handler chamber (106) and said projection chamber (111) can communicate for transferring of said object between said handler chamber (106) and said projection chamber ([0032], lines 4-7), and

Del Puerto et al. disclose at least one load lock chamber with a load lock chamber (104), but does not disclose "a load lock chamber which is provided with at least two mutually distinct object supports, each object support being configured to individually support said object."

However having "a load lock chamber which is provided with at least two mutually distinct object supports, each object support being configured to individually support said object" is known to the art as it is evident by the teaching of Fuse et al. (col. 4, line 26-29, where there are numerous wafers stored in a stocker). Thus, it would have been obvious to one having ordinary skilled in the art at the time the invention was made to modify the load lock chamber of Del Puerto et al. by having at least the purpose of increasing the production of wafer fabrication.

Regarding claim 2, Del Puerto et al. further disclose "wherein said second environment (106) has a lower pressure than said first environment ([0031], lines 7-13)."

Regarding claim 3, Del Puerto et al. further disclose "wherein said load lock (107) further comprises evacuation devices ([0030], lines 12-15; [0031], lines 3-4)."

Regarding claim 4, Del Puerto et al. further disclose "wherein said load lock (104) further comprises door devices (102, 107; gate valves) constructed and arranged to close said load lock chamber during evacuation and to open said load lock chamber to permit said object to be positioned into said load lock chamber and to respectively permit said object to be removed from said load lock chamber ([0031], lines 7-14)."

Regarding claim 5, Del Puerto et al. further disclose "wherein said load lock (104) comprises volume decreasing devices constructed and arranged to decrease said gas volume ([0031], lines 7-10)."

Regarding claim 6, Del Puerto et al. further disclose "wherein said volume decreasing devices ([0031], lines 7-10) are adapted to decrease said gas volume adjacent said surface of said object positioned on at least one of said object supports ([0031], lines 14-16, where wafers are transferred in and out of wafer exchange chamber in different pressured-environments)."

Regarding claim 7, Del Puerto et al. further disclose "wherein said at least one of said object supports comprises a support plate (211; chuck) of a size about equal to or larger than said object to be supported (see fig. 2A, where **211** is substantially equal in size to the object **207**),

wherein a ceiling plate (201; alignment load-lock roof) is provided above said at least one of said object supports, said ceiling plate having a size of about equal to or larger than said object (see fig. 2A, where **201** is larger than **207**); and

wherein said volume decreasing devices comprise a positioning device (202; camera) constructed and arranged to decrease the distance between said support

plate (211) and said ceiling plate prior (201) to and/or during evacuation of said load lock chamber (104) and to increase said distance between said support plate (211) and said ceiling plate (201) prior to said object being removed from or delivery to said at least one of said object supports ([0040], lines 14-18; [0044], lines 4-7)."

Regarding claim 8, Del Puerto et al. further disclose "wherein said positioning devices are adapted to act on one of said support plate and said ceiling plate, while the other of said support plate and said ceiling plate is arranged in a stationary manner in said load lock chamber ([0045], lines 12-17)."

Regarding claim 9, Del Puerto et al. further disclose "wherein said positioning devices are provided at sides of said load lock chamber, at the top of said load lock chamber, or at the bottom of said load lock chamber ([0045], lines 17-18)."

Regarding claim 10, Fuse et al. further disclose "wherein said load lock includes a thermal treatment device constructed and arranged to bring said object to a predetermined temperature or equalize said temperature across said object (col. 7, lines 56-59, where the wafer's temperature is made uniform)."

Regarding claim 11, Fuse et al. further disclose "wherein a said support plate (18; treatment boat) of at least one of said at least two object supports (58, 18) is provided with said thermal treatment device."

Regarding claim 12, Fuse et al. further disclose "wherein two of said at least two object supports are place one above the other (see fig. 7, where wafers 20 are vertically stacked), and wherein said thermal treatment device is positioned between said two of said at least two object supports (col. 3, lines 58-63)."

Regarding claim 13, Fuse et al. further disclose "wherein said thermal treatment device comprises lines (10; process tube) and a fluid pumping system constructed and arranged to pump fluid through said lines (col. 6, lines 33-36, where gas is carried out through tubes), said lines being arranged such that said lines are in thermal contact with said corresponding support plate (col. 6, lines 17-19)."

Regarding claim 14, Fuse et al. further disclose "wherein said lines are provided internally in one of said support plate and a wall of said load lock chamber (col. 6, line 8 and lines 17-19)."

Regarding claim 15, Del Puerto et al. further disclose a load lock chamber with an evacuation device ([0031], lines 7-11). Del Puerto et al. disclose a bottom wall (231), but does not disclose wherein said load lock chamber comprises a top wall.

However, it is inherent for a chamber to comprise of a top wall, which an enclosure is necessary to utilize a vacuum space as disclosed by Del Puerto et al. Thus, it would have been obvious to one ordinary skilled in the art at the time the invention was made to further modify the load lock chamber of Del Puerto et al. for at least the purpose of maintaining a vacuum space for transferring of the wafer.

Regarding claim 16, Del Puerto et al. further discloses "wherein said venting opening and said evacuation opening are arranged substantially centrally with respect to said object supports, said object supports being arranged one above the other (204, 205, 206; wafer supports; [0040], lines 9-11)."

Regarding claim 17, Del Puerto et al. further disclose "wherein said projection chamber (111) is a vacuum chamber and wherein said lithographic projection

apparatus comprises vacuum devices constructed and arranged to establish a vacuum in said vacuum chamber ([0031], lines 7-11; [0033], line 3)."

Regarding claim 18, Del Puerto et al. further

- "a radiation system constructed and arranged to provide a beam of radiation ([0004], lines 15-17);
- a support structure to support a patterning devices, said patterning devices serving to pattern said beam according to a desired pattern ([0006], line 5-9);
- a substrate table for holding a substrate [0004], line 10); and
- a projection system constructed and arranged to project said patterned beam onto a target portion of said substrate ([0004], lines 11-12)."

Regarding claim 19, Del Puerto et al. further disclose "wherein said object is a semiconductor wafer ([0004], line 5)."

Regarding claim 20, Del Puerto et al. further disclose "wherein said door device comprises a first door (102; gate valve) towards said first environment and a second door (107; gate valve) towards said second environment."

Regarding claim 21, Del Puerto et al. further disclose "further comprising two or more of said load locks (104, 105, 114)."

Regarding claim 22, Del Puerto et al. further disclose all of the claimed limitations set forth in claim 1 and further discloses "wherein said object handler (109) is integrated in said load lock, so that said handler chamber (106) and said load lock chamber are a single unit ([0031], lines 12-16, fig. 1, where the gate valves can

be controlled to implement the load lock chamber and handler chamber to operate as a single unit chamber)."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Tabrizi et al. (US 2004/0091349) disclose a load-lock transfer system with a process chamber.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kevin Gutierrez whose telephone number is (571)-272-5922. The examiner can normally be reached on Monday-Friday: 8:00 a.m. - 5:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Diane Lee can be reached on (571)-272-2399. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

HENRY HUNG NGUYEN
PRIMARY EXAMINER